Access for All:
Meeting Vermont's Broadband and Wireless Goals

A Report Pursuant to Act 172 of the 2005-2006 Session
of the Vermont General Assembly

February 2007

Vermont Department of Public Service
112 State Street
Montpelier, VT 05620-2601
(802) 828-2811
TTY/TDD (VT): 1-800-734-8390
email: vtdps@state.vt.us
Internet: http://publicservice.vermont.gov

The Vermont Department of Public Service is an equal opportunity agency and offers all persons the benefits of participating in its services, programs, and activities and competing in all areas of employment, regardless of race, color, religion, sex, national origin, age, sexual orientation, or disability.

This document can be made available in alternate format on request. Contact: Deputy Commissioner, Department of Public Service, 802-828-2811 (voice), 800-734-8390 (TTY).

Access for All:
Meeting Vermont's Broadband and Wireless Goals

A Report Pursuant to Act 172 of the 2005-2006 Session of the Vermont General Assembly

February 2007

Vermont Department of Public Service
112 State Street
Montpelier, VT 05620-2601
(802) 828-2811
TTY/TDD (VT): 1-800-734-8390
email: vtdps@state.vt.us
Internet: http://publicservice.vermont.gov

Table of Contents

Introduction

In today's society, broadband access is an essential part of economic development, educational access, health care information systems, civic participation, and overall quality of life. Vermont is committed, through law and policy, to the goal of providing ubiquitous broadband availability to Vermonters. Governor Douglas has called for this goal, as well as the goal of universal access to cellular service in Vermont, to be achieved by the year 2010. As outlined in the report, *Understanding Broadband Deployment in Vermont*, progress has been made to date in achieving these goals. Nevertheless, an important minority of Vermonters still lack access. Reaching the last remainder of Vermonters without broadband access will require new efforts to support the spread of the service. This report describes these new efforts, including the establishment of a Vermont Telecommunications Authority, which would establish partnerships with service providers and private investors and be empowered with the ability to bond to help fund the development of new telecommunications infrastructure.

This document provides information to the Vermont General Assembly on how to make further progress toward the state's broadband deployment goals. This report starts by summarizing how state programs, policies and regulations help or hinder broadband deployment, and it provides recommendations for administrative and legislative actions that could stimulate further deployment of broadband services, as called for in Act 172 of the 2005-2006 legislative session. Act 172 also required a report describing how Vermont state agency and department policies, procedures and regulations affect broadband deployment. On October 1, 2006, the Public Service Department (PSD) provided this report, the *Vermont State Agency Broadband Inventory,* to three legislative committees.[1] Much of that information was referenced in preparation of this further report. While this report focuses on how to advance the state's broadband goals, a number of recommended actions will help the state meet its goals both for broadband and for cellular service.

To obtain the benefit of multiple perspectives when developing these recommendations, the PSD met with key stakeholders throughout Vermont in order to determine in which areas the state could be doing a better job of enabling broadband deployment and reaching the our goal of ubiquitous broadband access. We sat down with members of community Internet projects, telephone companies, cable companies, and public organizations and discussed the state's approach to encouraging broadband deployment.[2] These discussions generated a variety of ideas to improve the state's role in broadband deployment and are a vital input to our policy recommendations herein. We asked questions, gathered information and obtained suggestions from other agencies and

[1] The House Commerce Committee, the Senate Finance Committee, and the Senate Economic Development, Housing, and General Affairs Committee.

[2] The Department met with representatives of the Vermont Broadband Council, the Vermont Council on Rural Development, the Vermont Business Roundtable, the Center for Media and Democracy, the Economic Development Council of Northern Vermont, the Telephone Association of Vermont, Verizon, Comcast, Burlington Telecom, Sovernet, and community broadband projects in Marshfield/Plainfield, Windham, and Stamford.

departments in state government[3]. We engaged the Governor's Telecommunications Advisory Council during its summer and fall meetings in a discussion on how best to advance the goal of universal broadband[4]. These meetings included several legislators recommended by legislative leadership[5]. While this report contains the final recommendations of the Department, we benefited greatly from the many conversations that led up to this report.

Effect of State Policy on Broadband Deployment to Date

Through Act 172, the legislature has asked the Department to identify state and federal regulations, programs, and policies that help or hinder the deployment of broadband services. There are many such regulations and programs that affect deployment of broadband services, and we describe these and the various other factors that affect broadband in the companion to this document, *Understanding Broadband Deployment in Vermont*. Here, we highlight and summarize some of the most important state regulations, policies and programs affecting broadband deployment in Vermont positively or negatively: regulation of telephone and cable companies, pole attachment policies, wireless permitting, right-of-way policies, and state financial assistance.

Public Service Regulation

The Public Service Board and Department (and through enabling law, the legislature) have helped to make possible large expansions of broadband by applying and modifying regulatory requirements on cable and telephone companies. To date, the Public Service Department's focus has been to increase broadband availability to the greatest total number of Vermonters, and had not been targeted to support any specific areas of the state. As a high percentage of Vermonters now have broadband available or will through these policies, and as we now have better information about the locations that do not have service, it becomes appropriate to target efforts not only on expanding the networks that make broadband available, but ensuring that they expand in the specific areas that have not yet been reached.

Although it may seem obvious, the methods available to the Department and the Board are mostly effective in stimulating or supporting deployment by companies subject to the Board's regulation: cable and telephone companies. However, broadband Internet access itself is an unregulated service. Nevertheless, a number of important decisions in state regulatory policy have contributed to increases in broadband service.

Verizon Alternative Regulation

The Public Service Board in 2006 allowed Verizon to set rates in excess of its costs in exchange for a commitment to expand broadband availability from 56 percent of its

[3] The Department of Information and Innovation, as the department designated by the Governor as the lead organization for telecommunications advancement in Vermont state government, has contributed in an especially significant way to these final recommendations.
[4] The Chair of the Council is former Gov. Thomas Salmon. Also participating were members Jerry Johnson and Laura Duey. Tom Evslin joined the Council's discussions in an advisory capacity.
[5] Representatives Bill Botzow, Ernie Shand, and Mary Peterson participated in these broadband discussions of the Council.

Vermont lines in 2005 to 65 percent of its Vermont lines by 2007, 75 percent by 2008, 77 percent by 2009 and 80 percent by 2010. The commitment requires Verizon to expand an unregulated service, broadband Internet access, in areas that it did not find sufficient market motivation to serve prior to the commitment. Verizon will need to make substantial capital investments in Vermont in order to meet this commitment. In this manner, the PSB indirectly affects deployment of capital for broadband services.

Under the agreement reached by Verizon and the Department and approved by the Board, exactly where and when broadband will be made available is up to Verizon's discretion. However, the commitment level is high enough that broadband availability must expand throughout Vermont and not solely in areas with high population densities. This agreement will make significant progress towards the state's broadband deployment goals.

Small Telephone Company Regulation

Recent legislation made it easier for Vermont's independent telephone companies to offer bundles of services that include broadband, and granted these companies a reduced level of rate regulation. The Public Service Board has also considered broadband expansion commitments as part of independent telephone company rate adjustments. These recent actions encourage capital investment by independent telephone companies in broadband services, which are in part responses by these companies to opportunities in their local markets and the potential for competition. Under this relatively relaxed regime, the Public Service Board and Department continue to monitor small telephone company activity so that investment in broadband continues, rates remain reasonable, and service quality remains high.

Long-standing policy, as well as new policy, helps to facilitate the provision of broadband services by these companies. Local telephone companies charge long distance carriers fees, called access charges, for telephone calls that begin or end at the local telephone company exchange. These charges to long distance carriers, and ultimately to long distance customers, have traditionally provided a revenue stream that helped allow reasonable rates for local telephone service and ongoing investment in the network. Access charges approved by the Public Service Board for exchanges served by small local telephone companies are substantially higher than analogous charges in Verizon exchanges, and are a substantial fraction of these companies' revenue. By this mechanism, all long distance customers help to support basic local telephone rates and network investments that bring broadband to rural areas served by independent telephone companies.

Cable Line Extensions

Extending cable's reach expands broadband availability by extending current cable networks. Public Service Board rules[6] require cable companies to extend their lines without customer contribution where there is an excess of 25 homes per mile, except when specified differently in the company's certificate and tariff. Larger cable companies

[6] PSB Rule 8.313.

are building down to a density of 12-18 homes per mile. These requirements that extend cable television coverage also have the effect of extending broadband availability in Vermont.

Cable line extensions help improve broadband coverage in areas near existing cable plant. However, these policies are not effective in bringing broadband to the least densely populated, remote and rural areas that currently lack cable television service.

In addition to line extension requirements of the company's Certificate of Public Good, Comcast has inherited an obligation from Adelphia to build over 1,550 additional miles by 2009. Adelphia had previously reached an agreement with the Public Service Board to build these miles as part of a dispute settlement. Because of this commitment, Comcast will be making substantial investments in Vermont. By the end of 2006, approximately 700 of these miles had been constructed.

Pole Attachments

Pole attachment policies in Vermont are designed to give fair access to utility poles in the state. This facilitates expansion of service and encourages capital deployment throughout Vermont. Access to utility poles is an essential requirement for providing wireline broadband services in Vermont for service providers who do not own poles (primarily cable companies and competitive telephone companies). Regulated rates are available to utilities with a Certificate of Public Good (CPG), such as cable and telephone providers. The ability to attach to utility poles could also be useful to Wireless Internet Service Providers (WISPs) who do not currently have CPGs issued by the Public Service Board. WISPs in Vermont must negotiate independently for utility pole arrangements.

Wireless Siting

Siting of wireless communications equipment is an important component of broadband expansion in the state because of the development of wireless broadband services by WISPs. The ability to site equipment is also important to the expansion of cellular service in Vermont. Wireless communication equipment placement may be subject at some sites to both Act 250 and local permitting processes. Different local permitting processes across Vermont result in differing requirements, some more stringent than others. Experience over time and an effort to standardize the Act 250 process has helped expedite the process of obtaining permits. Nevertheless, this dual permitting process can delay expansion of wireless telecommunications services in Vermont.

Right-of-Way Access

Currently there are three different sets of regulations for placing facilities in Vermont's transportation corridors. Rules require a market rate be paid for use of rail rights of way in Vermont in many circumstances. For most highways, there is no charge to process or issue a permit to use highway corridors. Access to interstate highway rights of way by wireline facilities which do not have a "highway use" is currently prohibited pending the adoption of a new utility accommodation policy. Access to rights of way at reasonable rates encourages the development of telecommunications infrastructure in Vermont.

Financial Assistance

The Vermont Economic Development Authority (VEDA)[7] administers the Technology Infrastructure Fund (TIF) and has made available close to $2 million in below market interest rate loans as part of the TIF Program. The TIF Program can make loans of up to one million dollars and was designed to aid the development of advanced technology infrastructure in Vermont. The State of Vermont's Broadband Grant Program provides grants in increments of up to $50,000, and has granted $550,000 over the last three years. The program favors projects that will bring last mile connectivity to unserved areas of Vermont. Grants are issued to towns where the private market is unlikely to provide broadband services. These two programs have been important but modest sources of assistance for broadband expansion in those areas which need it most.

Defining Our Goals

The state, through the 2004 *Vermont Telecommunications Plan*, established a goal that 90% of Vermonters have access to broadband services by 2007 and 100% by 2010.[8] This year, the Governor has renewed the goal of achieving universal availability of broadband services by 2010, and has also called for universal availability of cellular service in Vermont by 2010.

Even as the state works to achieve its 2010 goals, it must focus on *both* short and long term horizons. For the short term, we must bring high speed Internet access to as many Vermonters as possible, as quickly as possible. We must also start now on an extended effort to support the development in Vermont of the next generation networks that are now starting to be built in larger metropolitan areas, and which are the future of Internet, television and telephone services.

On the one hand, we need to support initiatives that will quickly bring broadband access throughout Vermont. However, we are aware that without sufficient consideration for the long term, Vermonters' access to the Internet could lag behind the rest of the nation and world. Technological advances will make what we now call broadband look like today's dial-up Internet. It would be a disappointment if the state's efforts in the next few years to achieve leadership in broadband deployment were eroded by the pace of further developments in technology.

In the short term, wireless Internet delivery systems will be an important piece of the plan to get modern Internet connections within the reach of all Vermonters. Wireless Internet systems avoid stringing cables past each potential subscriber's home, and have relatively low start-up costs compared to building wired solutions. Wireless will allow some parts of Vermont to have broadband service in the next four years that would be unable to get it any other way in such a timeframe. Wireless technology in one form or another will also be a part of a modern telecommunications network for the long term because only wireless has the ability to provide mobility to users of communications services.

[7] VEDA is a Public Instrumentality of the State of Vermont, not a state agency or department.
[8] The precise goal is that all Vermonters who have access to telephone service ought to have access to broadband service. While this is not literally 100%, it is essentially all Vermonters.

Wireless Internet delivery through Wireless Internet Service Providers will likely play a big role in getting Internet services out to Vermonters as quickly as possible, but it is also important to consider other technology as part of a long term strategy. The telecommunications markets in more populated places across the country give us insight into what our telecommunications needs will be in the near future. Both telephone and cable companies are deploying technology that allow the delivery of video, Internet, and voice services, which is often referred to as the *triple play*. We refer to these networks capable of delivering video, very high speed Internet, and voice as next generation networks. The development of these networks is characterized by an increasing use of fiber optic technology and the nearly limitless transmission capacity it offers.

In Vermont, we are already seeing next generation networks emerge in limited areas. Burlington Telecom is delivering unprecedented bandwidth and a triple play of services over their fiber-to-the-home network in the City of Burlington. Vermont Telephone Company, based in Springfield, has also begun upgrading its network to one that brings fiber all the way to the customer. Even providers who are not currently bringing fiber all the way to homes and businesses are using fiber in parts of the network that come closer and closer to the customer if they plan to offer the triple play.

In summary, Vermont's broadband strategy at this time should focus both on spurring the development of wireless broadband networks to rapidly fill in gaps in broadband availability over the next few years, as well as starting now on an effort to support the development of networks offering next generation capabilities throughout the state.

Private Investment and Public Assistance

The legislature has asked the Department to identify whether the remaining unserved areas (which are identified in *Understanding Broadband Deployment in Vermont)* are likely to be served through private market initiatives, or with state subsidies and assistance. Based on the deployment trends and patterns to date, it seems unlikely that private market initiatives alone will bring broadband service throughout the remaining unserved areas, which are scattered throughout the state, mostly in areas with a low population density. Still, private investment is essential. We recommend a strategy, described below, that offers public sector assistance in partnership with private initiative.

Recommended Actions

This section offers a variety of actions to help encourage broadband deployment in Vermont which are tied back to our goals, and an understanding of what factors are working for and against broadband deployment in the state.

Vermont Telecommunications Authority

Our central recommendation is the creation of a Vermont Telecommunications Authority, charged with the mission of achieving universal access to broadband and cellular access in Vermont. The Authority should work by creating partnerships between sources of financing, developers of infrastructure, and providers of telecommunications service.

The Authority would not take over the role of service providers or supplant private investment. Instead, it would serve as a bridge between public sector resources and private sector investments.

Financing rural telecommunications infrastructure is a central challenge to achieving the state's broadband goals. Ultimately, we believe the users of telecommunications services in Vermont, taken as a whole, can pay for the development of broadband and wireless networks through the fees that they pay to use the services on the network. Nevertheless, there are some parts of our rural communities in which investments in telecom infrastructure cannot produce a reasonable return on investment in any reasonable period of time when they are examined in isolation from the whole. The Authority's job, then, would be to facilitate the financing and development of infrastructure, and to insist that it covers all of Vermont, not only parts.

To ensure that the Authority has the ability to build projects with the scale and scope needed to achieve the state's goals, the state can provide the Authority with its moral obligation of up to $40 million in bonds to back projects in the first year of construction and possibly more if needed and sustainable.[9] It should also be empowered to work in combination with any other sources of federal, state, or municipal funding or financing. The Authority should be empowered to use and leverage other assets of the state, such as rights of way, lands, towers and buildings. Initially, it would require an appropriation to fund operations, but it should seek to be financially self-sustaining.

Although the state, through the Authority, would be a substantial financial backer of telecom infrastructure investment, partnering with private investors would be essential to the success of the Authority in its mission to develop broadband and wireless networks in Vermont. This private investment is both necessary and desirable. The cost of infrastructure development is likely to be hundreds of millions of dollars, beyond the resources of the Authority alone. But beyond that consideration, by asking private investors to put their own money at risk, we will benefit from the expertise of those who have an incentive to see funded financially sound, well-executed projects.

The Authority in Action

The Authority should have the flexibility to make the investments and form the partnerships which present the best opportunities to meet the goals of broadband and cellular service availability. The Authority should solicit offers in a competitive process from investors who will work with the state to leverage the state's contribution and other partners who are telecommunications service providers and telecommunications infrastructure developers. Although the Authority should have flexibility, we anticipate that the primary way that it could expand the availability of broadband and cellular services is by using its financing resources to develop additional basic infrastructure, such as modest wireless towers and fiber optic facilities. These two types of infrastructure are the long-lived assets which will form the building blocks of telecommunications infrastructure for years to come. Repayment of borrowing for the

[9] Moral obligations bonds do not pledge the full faith and credit of the state. Nevertheless, they are a serious obligation.

projects will be based on revenues generated from leasing access to the infrastructure to service providers or from a share of the revenues from services provided over the network. The value of the assets controlled or created by the Authority will also help to secure the value of any bonds.

The Authority would improve the investment case in Vermont for the necessary private capital investment in telecommunications by sharing in—but not eliminating—other investors' financial risk in these projects, providing a longer-term investment horizon, and supporting projects with enough scale and scope such that the revenue from funded projects is sufficient to pay for those projects over time. The Authority and other public sector partners would have the opportunity to further enhance the attractiveness of investments in infrastructure through federal funding or creative financing. For example, any portion of the networks that could be paid for directly though a federal appropriation would reduce the amount of capital required without necessarily reducing revenues, thereby lowering the risk involved in the project. In a different kind of incentive, some private investment could be structured so that it flows through limited-obligation municipal indebtedness and gains the advantages of that investment. As the Authority shares in the cost of development with other partners, it should share in a revenue stream from them so that the Authority will be able to achieve financial self-sufficiency and re-invest in infrastructure.

The Authority should seek to complement – not replace – the role of service providers and infrastructure developers in building infrastructure and delivering service to Vermont. The Authority should only build networks and infrastructure that have long-term commitments from service providers to provide service to Vermonters. This is critical to the financial viability and sustainability of the effort. The Authority should provide equitable opportunities to multiple service providers to use the infrastructure and networks built with the Authority's involvement. The ability of the Authority to create enabling infrastructure would also improve the business model for companies looking to offer services. For example, if the Authority is able to pre-permit or develop networks of modest towers that fill in coverage gaps, wireless service providers will not have to worry about the expense and length of the tower permitting process and could benefit from robust backhaul capacity provided through the Authority. The Authority could contract with companies that have specific expertise, such as tower development, management, and marketing. It could negotiate with those entities that already own backbone networks and infrastructure to utilize those assets on a favorable commercial basis, as part of assembling a total network. All of these types of cooperation would allow the Authority to magnify the impact of its investments.

Besides its primary focus, we recommend that the Authority have the power to seek out grants and engage in other activities which advance its mission. For example, a small portion of the Authority's appropriation should be dedicated to a small grant and incentive program to encourage users (like town offices, downtown and village businesses and residential users) to share broadband connections through WIFI. WIFI "hotspots" provide wireless broadband access service to a very local area and are a complement to, not a substitute for, services which provide high-speed mobile wireless

access throughout a wide area (such as those being developed and deployed by cellular companies). Nevertheless, they are inexpensive to deploy in areas where people congregate. There should be a focus on ensuring at least one highly visible WIFI hotspot in every city, village, and town in the state, as an early achievement of the Authority.

In summary, the Authority would be a flexible instrument backed with financing resources and charged with meeting the public's interest in a ubiquitous broadband and wireless infrastructure. Through its ability to make investments and build new infrastructure, it would allow the state to pursue new partnerships which the state has not been able to effectively form to date, and change the equation for bringing broadband and cellular services to all of Vermont.

Wireless Permitting

Without the use of wireless technology, it is very unlikely that all Vermonters can be reached with broadband service by 2010. Siting additional wireless telecommunications facilities will be necessary if some Vermonters are not to experience substantial delays in gaining access to broadband services, and additional wireless sites will be needed to provide universal access to cellular service as well. Many will be low-impact facilities, producing less impact on the landscape than the numerous utility poles that are required to deliver electricity, telephone, and cable TV services throughout the state. However, some number of new towers will also be necessary. We recommend taking steps to reduce the number of steps required to permit small, low-impact wireless facilities, and the creation of a single, efficient process to review the impacts of the multiple simultaneous tower proposals which can be expected through the activity of the Vermont Telecommunications Authority. These steps can be taken without fundamentally altering the types of environmental criteria applied to these facilities.

Network Permits

An aggressive plan by the Vermont Telecommunications Authority to reach all Vermonters with cellular and broadband services by 2010 will almost certainly result in simultaneous tower proposals across regions of the state that are intended to function together as a whole network to provide coverage across a whole region. Under current Vermont law, such proposals would require individual permits in the local and Act 250 processes. Yet because the goal is to provide coverage to everyone, conditions and restrictions in one jurisdiction have the potential to impact the location, number and size of facilities in other jurisdictions if the network is to function as a whole. This makes it more difficult, time-consuming, and expensive to plan and construct a whole network. It also limits the ability of any jurisdiction to have an overview of the comprehensive environmental impact of the whole proposal.

If Vermonters require a network of sites in order to get service, it makes sense to review the environmental impact of such proposals as a network instead of a collection of individual sites. We propose that developers of wireless communications infrastructure (such as the Vermont Telecommunications Authority) be given the option to request a permit from the Public Service Board in lieu of local and Act 250 permits, if they are proposing a multi-site development. Such a process should require the Board to weigh

relevant Act 250 criteria, the requirements of the municipalities involved, as well as the state's need for service. In addition, we recommend the creation of a streamlined review process for wireless facility attachments to existing electric transmission and generation facilities, which are already reviewed by the Public Service Board. To avoid drawn-out litigation, these processes should have statutory clocks for a decision to be rendered.

The creation of the Vermont Telecommunications Authority and a network permitting process would create a unique opportunity for the state to consider in the design phase the trade-offs involved in such issues as tower height, collocation opportunities, tower placement, and number of towers. There is an opportunity to encourage an efficient network of towers used by multiple providers, as well as others such as public safety users. By focusing environmental review on the whole network instead of just the individual sites, it will be more likely that a network will emerge that minimizes cumulative environmental impact while permitting universal availability of service.

Local Zoning and Act 250

While we believe there are distinct advantages to a network permitting process, we believe applicants should continue to have the option to apply for permits on an individual site basis. In these cases, we believe it is important that small-scale facilities which most Vermonters would find acceptable can move rapidly through required permitting processes, if we are to rapidly achieve the goals of universal cellular and broadband service availability. For local permit processes, we recommend the creation of a minor permit application process that would be made statutorily available to all municipalities which regulate wireless communications facilities through zoning or another ordinance. This would allow administrative officers to determine, subject to appeal, that applications which would have only a minor impact need not go through the lengthy process that sometimes characterizes local review of these facilities.

Under Act 250, the District Environmental Commission currently has jurisdiction over wireless communications facilities, even if there would be no jurisdiction due to involved acreage or elevation, when a wireless communications support structure is a new structure taller than 20 feet above the ground or adds 20 feet to an existing structure. We propose that new structures which are less than 50 feet should not trigger this additional jurisdiction. (This would not exempt such structures if jurisdiction was triggered for some other reason.) At 50 feet, which is only slightly taller than the typical utility pole height of 35-45 feet, impacts would be local and would still be minor.

Transportation Rights-of-Way and Access to Utility Poles

Access to transportation Rights-of-Way (ROWs) and utility poles at reasonable prices are key enablers for companies building the infrastructure to provide broadband service. Companies that provide broadband services in Vermont should have the privilege of operating in the public rights of way when they provide valuable services to Vermonters.

Currently, only utility providers in Vermont that have been granted a Certificate of Public Good (CPG) by the Public Service Board have an explicit right to attach equipment to utility poles. There is nothing that currently prohibits companies without CPGs from

attaching to utility poles, but they must do so at rates independently negotiated with the utility. Utility pole owners are obligated to charge Board approved tariffed rates to certificated companies that request attachment to poles.

We recommend creating a registration process for broadband providers, which would have the effect of leveling the playing field for businesses wishing to attach to poles and place facilitates in Vermont rights of way. Broadband providers would complete a registration process with the Department of Public Service, after which they would be granted an explicit right to attach to utility poles and place facilitates within rights of way under the same rules and rates as certificated telephone and cable companies.

Wireless communications attachments should be expressly included in the attachments allowed on existing utility poles. Both wireless and wireline solutions should be afforded similar attachment rights. Adopting this policy will help enable both the short term benefits of access to broadband, and the long term benefits of next generation telecommunications networks.

We also recommend reforms to the collection of compensation for use of ROWs by providers of telecommunications service, including broadband. We recommend that the Agency of Transportation establish standardized ROW fee schedules in Vermont but also provide a mechanism to reduce or eliminate fees for companies who provide services or facilities of value that are in the public interest. This could take the form of services or facilities provided to state government, or services provided to the public at large.

Clarify the Role of Electric Utilities in Telecommunications

Electric utilities are potential enablers in the development of telecommunications networks. These companies deliver electricity to essentially every home and business in their respective territories, including very rural places. There are a variety of degrees to which electric utilities could get involved in the telecommunications and broadband business. Perhaps the smallest contribution would be to help another provider string cable or attach wireless telecommunications equipment on existing electrical distribution infrastructure. A company with the degree of reach and physical presence of an electric utility might also see good revenue opportunities by adding distribution of telecommunications to its business model. The electric utility or a commercial partner could use existing and/or new fiber optic infrastructure to deliver a variety of new services to current customers.

Regulatory policy has often encouraged a cautious approach to the involvement of electric utilities in non-core businesses. If an electric utility made money in a new line of business, the Public Service Board would have likely returned a portion of those profits to ratepayers by lowering rates for electricity. The Board is also not likely to allow ratepayers to bear any of the risks associated with entrepreneurial activities of the electric utilities, a further disincentive. Given Vermont's need for advanced telecommunications services, it may be appropriate to consider establishing clear regulatory policy for electric utilities that wish to provide broadband services or partner with third parties to provide broadband services.

The Public Service Board and the Department of Public Service should work cooperatively to identify and eliminate any unnecessary regulatory disincentives an electric utility currently faces if it were to venture alone or with a partner into broadband distribution. The policy should consider the best interests of electricity customers as well. We recommend that the Board sponsor a policy making investigation into this matter, and that this investigation form the basis for a report by the Department to the Board and the legislature. By directly engaging utilities in a dialogue on the subject, it may be possible to create a level of comfort for both utilities and regulators that will allow electric utilities to provide more assistance toward reaching Vermonters with broadband.

The policies of the Board and the Department should be reasonable and flexible if and when an electric utility proposes to assist in bringing broadband services to unserved and underserved areas. We should also understand that even if the electric utility partners with another firm for broadband delivery, the electric utility may be in a position to provide vertical infrastructure, and labor for installation and maintenance.

Disclosure of Broadband Expansion Plans

Verizon's expansion of broadband service under the terms of its alternative regulation plan will be a significant contributor to the expansion of broadband service over the next few years. Still, Verizon has discretion about where in its footprint it will deploy to meet its overall broadband deployment milestones. Verizon currently does not publicly disclose information about where it is planning to deploy broadband. While there should be no barriers to competition by one provider of broadband service with another, the lack of public information about major upcoming broadband expansions makes it more difficult for service providers who wish to serve unserved areas to do so. Ultimately, more investment goes into areas with double coverage and less into areas with no coverage. If Verizon and other companies were to disclose their plans, more Vermonters will be able to obtain broadband Internet more rapidly because various efforts to expand broadband can focus on serving those areas with the greatest need, those that would be left without service. We recommend that companies with commitments to expand broadband service disclose their plans.

How the Federal Government Can Help

Our congressional delegation, especially Senator Leahy, has done great work over the past several years in bringing millions of dollars to the state for broadband. We think there are now opportunities for federal dollars and state initiatives to produce more than they do currently through a closer coordination.

Most of the Vermont broadband infrastructure projects that the federal government has supported in recent years are "middle mile" projects. These projects connect various regions of Vermont by fiber or microwave, but do not by themselves provide Vermonters with connections at the last mile. Going forward, all parties should give priority to a clear plan to connect such networks with the last mile, the connection to the residential and small business end user, and provide last-mile connectivity to Vermonters who need

it. Providing service to last-mile projects should be the top priority at this time, and additional support for middle mile projects in the state should be considered primarily to the extent they are shown to be needed to reach the last mile.

With the help of federal funds, communities across Vermont are doing an incredible job of organizing demand and addressing the need for broadband in their areas. We suggest continuing to support efforts such as the Vermont Rural Broadband Project. There is a need for *more* information from communities describing for potential providers the extent of demand in our communities, and technical assistance that would help local communities participate as partners in the effort to bring broadband to them.

To the extent the state supports policy changes at the federal level, we should work with our representatives so that our policies can be supported in Congress. We should be able to work together to accomplish shared objectives. For example, the Department of Public Service has recently provided comments to the FCC that support high coverage expectations for licensees in the upcoming 700 MHz spectrum auctions. If the terms of wireless licenses require coverage, it will greatly assist other recommendations we have provided here. Congressional support of this and similar spectrum policy initiatives is much needed.

Universal Service policy should be another area of collaboration. The next Congress is likely to debate reform of the Federal Universal Service Fund. The Fund needs to be made sustainable, but it is important to fight for continuing support of rural telecommunications, and to make sure that broadband is supported as the new universal service.

Summary and Conclusion

Broadband service is expanding in Vermont, but it is not expanding fast enough. State policy has supported the expansion of broadband through various forms of regulation and regulatory forbearance for cable and telephone companies through policies that provide access to utility poles and highway rights of way, and through modest financial assistance. There has been action by the private market to expand broadband service, but it seems unlikely that it will result in service to every Vermonter before this generation of broadband is made obsolete by the next generation of technology.

Our goal is to achieve universal availability of broadband (as well as cellular) service by 2010. This is a short amount of time to accomplish these goals, but a long time to those who would rely on these essential tools for participating in the modern economy and society. As we move to meet these goals, we must start now to also build the next generation networks, capable of carrying voice, real-time video, and very high speed data, which are the long-term requirements for sustaining a leading position in technology infrastructure.

We recommend as the central part of a new strategy for meeting these goals, the establishment of a Vermont Telecommunications Authority, which will be capable of bringing substantial bonding resources to bear on the financing of telecommunications

infrastructure. It will be important for this new Authority to work in partnership with sources of private capital and service providers, and in concert with those at the local and federal level. While the Authority is the main action we recommend, there are a number of important actions that the state should take as part of an overall strategy. Permitting of wireless communications facilities must be made simpler and more expeditious to make possible the needed expansion of broadband and cellular service. We must clear away remaining impediments related to access to utility poles and the cost of transportation rights of way for those who are willing to help us meet our goals. We should seriously examine how electric utilities can best be partners in the development of our telecommunications infrastructure. We also need to work in concert with our congressional representatives to make the most of any federal assistance for broadband deployment in Vermont.

The achievement of these goals is challenging but necessary to the future of Vermont. The actions described in this report provide Vermont with the tools to achieve that future.